

a generating unit for generating said transmit power control data according to a quality of the plurality of downlink signals to be included in said uplink signal.

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34. A mobile station in a mobile communication system, comprising:

a timing unit for timing a sending of a transmit power control data to be included in a uplink signal,

a receiving unit for receiving a plurality of downlink signals,

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a measuring unit for measuring a quality of the received downlink signals which reach the measuring unit until a timing which is a predetermined period earlier than the timing of sending the transmit power control data, and

a generating unit for generating said transmit power control data according to said quality.

35. The mobile station of claim 34, wherein said predetermined period is for a processing time required to generate the transmit power control data.

36. A mobile station in a mobile communication system, comprising:

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a timing unit for timing a sending of a transmit power control data to be included in an uplink signal,

a receiving unit for receiving a plurality of downlink signals,

a measuring unit for measuring a quality of the received downlink signals, and

a generating unit for generating said transmit power control data according to the quality of the received signals which reach the generating unit until a timing which is a predetermined period earlier than the timing of sending the transmit power control data.

37. The mobile station of claim 36, wherein said predetermined period is for a processing time required to generate the transmit power control data.

38. A mobile station in a mobile communication system, comprising:

a receiving unit for receiving transmission signals respectively transmitted in parallel from a plurality of base stations in the mobile communication system,

a channel control unit for determining from at least one of said transmission signals a channel control

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timing for controlling the transmit timing from the mobile station and processing the received transmission signals and providing an output to be included in a next uplink signal according to said channel control timing, and

a processing unit for processing the received transmission signals and providing a response.

39. A mobile station in a mobile communication system, comprising:

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a determining unit for determining a minimum processing time required to generate transmit power control data such that the transmit power control data can be included in an uplink signal,

a measuring unit for measuring a respective value of signal quality from each of a received plurality of downlink signals, and

a generating unit for generating the transmit power control data according to the measured value of signal quality of respective downlink signals received prior to the start of the minimum processing time.

40. A mobile station in a mobile communication system where a mobile station is simultaneously connected with a plurality of base stations via a plurality of radio

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channels and where the mobile station provides transmit power control data useful in controlling the transmit power of the base stations, comprising:

a determining unit for determining a minimum processing period for processing a downlink frame to provide transmit power control data to the base stations in a next uplink frame while maintaining channel timing control,

a measuring unit for measuring a value of signal quality for each of the plurality of radio channels, and

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a generating unit for generating transmit power control data to be included in the next frame, from the measured value of signal quality of respective radio channels received prior to the start of the minimum processing period.

41. An electronic device in a mobile terminal of a mobile communication system, comprising:

a receiving unit for receiving transmission signals respectively transmitted in parallel from a plurality of base stations in the mobile communication system,

a processing unit for processing said transmission signals, and

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a channel control unit for determining from at least one of said transmission signals a period during which data from said processing unit will be utilized in generating a next uplink signal to be transmitted to at least one base station of said plurality of base stations.

42. A radio terminal equipment comprising:

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a receiving unit for receiving in parallel a plurality of radio waves which may reach the receiving unit at deviating points in time, through a radio transmission path;

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a channel controlling unit for processing any radio wave of said plurality of radio waves received during a period of time by said receiving unit according to a channel controlling procedure; and

a transmission unit for transmitting to said radio transmission path a transmission wave signifying a response to any radio wave which is an object of said processing by said channel controlling unit; wherein

said period of time is a period allowing for the length of time needed for executing the processes required for said channel controlling including said processing by said channel controlling unit, processing to be done to said transmission wave(s) received by a radio station

connected through said radio transmission path, and for the transmission in said radio transmission path.

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43. The radio terminal equipment as claimed in claim 42, wherein said period of time is a period given in advance to said channel controlling unit and is relative to a point in time at which a specific one of said plurality of radio waves is received by said receiving unit.

44. The radio terminal equipment as claimed in claim 42, wherein:

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said receiving unit obtains an individual point of time that each radio wave of said plurality of radio waves is received and measures a transmission quality for each of said plurality of radio waves;

said channel controlling unit determines a point in time, at which said transmission wave is to be transmitted, which is relative to a result of averaging the sum of products of said individual points in time and said transmission quality measured by said receiving unit from said any radio wave received during said period of time; and

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said transmission unit transmits said transmission wave(s) at said point in time obtained by said channel controlling unit.

45. The radio terminal equipment as claimed in claim 43, wherein said plurality of radio waves reach said radio terminal equipment individually and sequentially in a cycle having a nearly equal nominal value, and

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said period given in advance is given as a subset of each period in which said radio waves can be received by said receiving unit, and which is subsequent to said individual points in time at which said plurality of radio waves individually reach the receiving unit during the period in said cycle which precedes said period given as the subset of each period.

46. The radio terminal equipment as claimed in claim 43, wherein each radio wave of said plurality of radio waves comprises a plurality of frames that reach said radio terminal equipment individually and sequentially in a cycle having a nearly equal nominal value, and

said period given in advance is given as a subset of each period during which said frames can be received by said receiving unit, and which is subsequent a points in

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time at which a frame individually reaches the receiving unit during a period in said cycle which precedes said period given as the subset of each period.

47. The radio terminal equipment as claimed in claim 44, wherein said plurality of radio waves reach said radio terminal equipment individually and sequentially in a cycle having a nearly equal nominal value, and

said period given in advance is given as a subset of each period in which said radio waves can be received by said receiving unit, and which is subsequent to said individual points in time at which said plurality of radio waves individually reach the receiving unit during the period in said cycle which precedes said period given as the subset of each period.

48. The radio terminal equipment as claimed in claim 43, wherein said plurality of radio waves reach said radio terminal equipment individually and sequentially in a common cycle having a nearly equal nominal value, and

said period given in advance is a subset of each period from the earliest point in time, at which any one of said plurality of radio waves reach the receiving unit during a period in said cycle which precedes said period



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given as the subset of each period, to the latest point in time at which any of a following said plurality of radio waves reach the receiving unit.

49. The radio terminal equipment as claimed in claim 44, wherein said plurality of radio waves reach said radio terminal equipment individually and sequentially in a common cycle having a nearly equal nominal value, and

said period given in advance is a subset of each period from the earliest point in time, at which any one of said plurality of radio waves reach the receiving unit during a period in said cycle which precedes said period given as the subset of each period, to the latest point in time at which any of a following said plurality of radio waves reach the receiving unit.

50. The radio terminal equipment as claimed in claim 42, wherein said channel controlling unit determines lengths of time needed for both said processing said radio waves received by said receiving unit and said processing to be done on responses transmitted by said transmission unit, wherein the processing done by said radio station connected through said radio transmission path includes processing one or more of said radio waves received during

a period where said lengths of time needed for the processes are suitable for the system of said channel control.

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51. The radio terminal equipment as claimed in claim 50, wherein at least one of said lengths of time needed for the processes to be done on said radio waves received by said receiving unit and/or said process done by said radio station connected through said radio transmission path to be done on said response transmitted by said transmission unit vary in accordance with an event which can be identified by said channel controlling unit while executing said channel control procedure, and

said channel controlling unit determines said lengths of time needed for the processes in accordance with said event identified under said channel controlling procedure.

52. The radio terminal equipment as claimed in claim 50, wherein said channel controlling unit determines said lengths of time needed for the processes to be done on said radio wave received by said receiving unit under said channel controlling procedure with a level of accuracy which will compensate for at least one of a fall in the

transmission rate of said radio transmission path and/or a deviation of said radio waves.

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53. The radio terminal equipment as claimed in claim 42, wherein said channel controlling unit during the execution of said processing restricts the operation of composing elements to processing said radio waves received by said receiving unit under said channel controlling procedure, said composing elements including said receiving unit, said channel controlling unit, and said transmission unit.

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54. The radio terminal equipment as claimed in claim 53, wherein said processing said radio waves received by said receiving unit under said channel controlling procedure by said composing elements includes processing to determine at least one of a period suitable for said transmission system of said radio transmission path and/or a starting point of said period.

55. The radio terminal equipment as claimed in claim 42, wherein said plurality of radio waves respectively reach said radio terminal equipment

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individually and sequentially in a cycle and contain control information on transmitting power control, and

said channel controlling unit controls the transmitting power responsive to said control information included in a specific radio wave of said plurality of radio waves reached during a preceding period, through at least one of said receiving unit and said transmission unit.

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56. The radio terminal equipment as claimed in claim 42, wherein

said channel controlling unit monitors at least one of a transmission quality and a field strength level of a radio wave received by said receiving unit per wireless zone on the basis of zone configuration and channel allocation, and performs a channel control of a wireless zone which has the highest transmission quality.

57. The radio terminal equipment as claimed in claim 42, further comprising

a demodulating unit for acquiring transmission information by one of demodulating at least part of said radio waves, which are the object of the processing by said

channel controlling unit and by demodulating said radio waves under predetermined weighting.

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58. The radio terminal equipment as claimed in claim 42, further comprising

a demodulating unit for acquiring transmission information by one of demodulating at least part of said plurality of radio waves reached through said radio transmission path and received in parallel by said receiving unit, and by demodulating said radio waves under predetermined weighting.

59. The radio terminal equipment as claimed in claim 42, wherein said channel controlling unit determines a point in time at which said transmission wave is to be transmitted to said radio transmission path, and

said transmission unit transmits said transmission wave at said point in time determined by said channel controlling unit.

60. The radio terminal equipment as claimed in claim 59, wherein said point in time at which said transmission wave is to be transmitted to said radio transmission path fluctuates in accordance with events

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which can be identified by said channel controlling unit during said processing according to said channel control procedure, and

said channel controlling unit obtains said point in time at which said transmission wave is to be transmitted in accordance with said events identified under said channel controlling procedure.

61. A base station in a mobile communication system, for receiving, comprising:

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a receiving unit for receiving a transmit power control data generated by a mobile station according to a quality of a plurality of downlink signals which are reached at said mobile station until a timing which is a predetermined period earlier than a timing of sending transmit a power control signal at the mobile station, and

a transmit power control unit for controlling a transmit power control according to said transmit power control data.

62. In a mobile radio terminal where transmit and receive timing is controlled by a channel control procedure, a method of transmitting a response to received plurality of radio waves, comprising the steps of:

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receiving in parallel the plurality of radio waves which may reach the radio terminal equipment at deviating points in time, through a radio transmission path;

processing any radio wave of said plurality of radio waves having a deviation less than a point in time where processing could not be completed in time to maintain the channel control procedure; and

transmitting to said radio transmission path a transmission wave signifying a response to any radio wave which is an object of said processing.

63. The method of claim 62, wherein said channel control procedure includes processing to be done to said transmission wave(s) received by a radio station connected through said radio transmission path and which is also suitable for a transmission system in said radio transmission path.

64. The method of claim 62, further comprising the step of:

determining the point in time responsive to the receiving step and the channel control procedure and said point in time is relative to a point in time at which a specific one of said plurality of radio waves is received.

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65. The method of claim 62, further comprising the steps of:

determining an individual point of time that each radio wave of said plurality of radio waves is received;

measuring a transmission quality for each of said plurality of radio waves;

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determining a transmission point in time, which is a point where said transmission wave is to be transmitted, and is relative to a result of averaging the sum of products of said individual points in time and said transmission quality measured from said any radio wave received prior to said point of time; and

said transmitting step transmits said transmission waves at said transmitting point in time.

66. A method of processing a plurality of downlink signals in a wireless communications system where each downlink signal of said plurality comprises sequential frames and where transmit and receive timing is controlled by a channel control procedure, comprising the steps of:  
receiving in parallel the plurality of radio waves which frames may reach the radio terminal equipment at



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deviating points in time, through a wireless communication channel;

processing any frame of said plurality of radio waves having a deviation less than a point in time where processing could not be completed in time to maintain the channel control procedure; and

transmitting through a wireless communication channel an uplink signal signifying a response to said any frame which is an object of said processing.

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67. The method of claim 66, wherein said channel control procedure includes processing to be done to said uplink signal received by a radio station connected through said wireless communication channel and which is also suitable for a transmission in said wireless communication channel.

68. The method of claim 66, further comprising the step of:

determining the point in time responsive to the receiving step and the channel control procedure and said point in time is relative to a point in time at which a specific one of said plurality of radio waves is received.

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69. The method of claim 66, further comprising the steps of:

determining an individual point of time that each frame of said plurality of radio waves is received;

measuring a transmission quality for each of said plurality of radio waves;

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determining a transmission point in time, which is a point where said uplink signal is to be transmitted, and is relative to a result of averaging the sum of products of said individual points in time and said transmission quality measured from said any frame received prior to said point of time; and

said transmitting step transmits said uplink signal at said transmitting point in time.

70. A method of generating transmit power control data to be transmitted in an uplink signal from a mobile terminal in a communication system, the mobile terminal capable of receiving a plurality of downlink signals, comprising the steps of:

determining a minimum processing time required to generate the transmit power control data such that the transmit power control data can be included in an uplink signal,

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measuring a respective value of signal quality  
from each of a received plurality of downlink signals, and  
generating the transmit power control data  
according to the measured value of signal quality of  
respective downlink signals received prior to the start of  
the minimum processing time.

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71. A method of generating transmit power  
control data to be included in a frame of an uplink signal  
from a terminal in a communication system, the terminal  
capable of simultaneously receiving a plurality of frames  
in respective downlink signals, the frames having a period  
of time during which information is measured that is useful  
in determining the transmit power control data to be  
included in the frame of the uplink signal, comprising the  
steps of:

receiving a downlink signal,  
determining from the downlink signal an uplink  
signal timing used in maintaining channel control when  
generating and transmitting the uplink signal, and  
generating transmit power control data to be  
included in a next frame of an uplink signal, the  
generating starting at a time required to maintain the  
uplink signal timing, and the transmit power control data

generated from only frames of data from respective downlink signals, having said useful periods of time which are received prior to the start of the generating step.

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72. A method of generating transmit power control data to be included in a frame of an uplink signal from a terminal in a communication system, the terminal capable of simultaneously receiving a plurality downlink signals, comprising the steps of:

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determining a period of time during which a measuring of a respective value of signal quality for each of the plurality of downlink signals must occur in order to maintain uplink channel control timing while including the transmit power control data in a next uplink frame, and

generating transmit power control data to be included in the next uplink frame from only the downlink signals having their respective value of signal quality measured during the determined period of time.

73. A method of controlling transmission powers in a wireless mobile communication system where a mobile station is simultaneously connected with a plurality of base stations via a plurality of radio channels and where the mobile station provides transmit power control data

useful in controlling the transmit power of the base stations, comprising the steps of:

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determining a minimum processing period for processing a downlink frame to provide transmit power control data to the base stations in a next uplink frame while maintaining channel timing control,

measuring a value of signal quality for each of the plurality of radio channels, and

generating transmit power control data to be included in the next frame, from the measured value of signal quality of respective radio channels received in between the minimum processing period.

74. A method of controlling a transmission power of a base station of a wireless communication system, comprising the steps of:

receiving in the base station an uplink signal containing transmission power control data,

determining from the transmission power control data a transmission power of a next downlink signal, and

transmitting the next downlink signal at a power level responsive to the determining step, wherein

generating the transmission power control data in a mobile terminal comprises the steps of:

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determining a period of time during which a measuring of a respective value of signal quality for each of the plurality of downlink signals must occur in order to maintain uplink channel control timing while including the transmit power control data in a next uplink frame, and generating transmit power control data to be included in the next uplink frame from only the downlink signals having their respective value of signal quality measured during the determined period of time.

75. A method of signal processing in a wireless communication system, comprising the steps of:

transmitting a downlink signal from a base station;

receiving a downlink signal in a terminal,

determining from the downlink signal an uplink signal timing required to maintain channel control when generating and transmitting an uplink signal;

processing the downlink signal to provide a processing result; and

generating an uplink signal, the uplink signal containing the processing result if the processing step is completed prior to the start of the generating step, the generating step starting at a time required to maintain the

uplink signal timing.

76. A method of signal processing in a wireless communication system having a plurality of base stations, comprising the steps of:

transmitting a downlink signal from each base station of said plurality of base stations;

receiving the transmitted downlink signals in a terminal,

determining from at least one of the downlink signals an uplink signal timing required to maintain channel control when generating and transmitting an uplink signal;

processing each of the downlink signals to provide a processing result for each downlink signal; and

generating an uplink signal, the uplink signal containing the processing result for each downlink signal in which the processing step is completed prior to the start of the generating step, the generating step starting at a time required to maintain the uplink signal timing.

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Claims 1-32 were canceled. Claims 33-76 were added.

No new matter has been added.